Reinventing Industry-University Relations

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National Research Council
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Agenda

Industry and Universities: A Magical Synergy

Health of the Enterprise

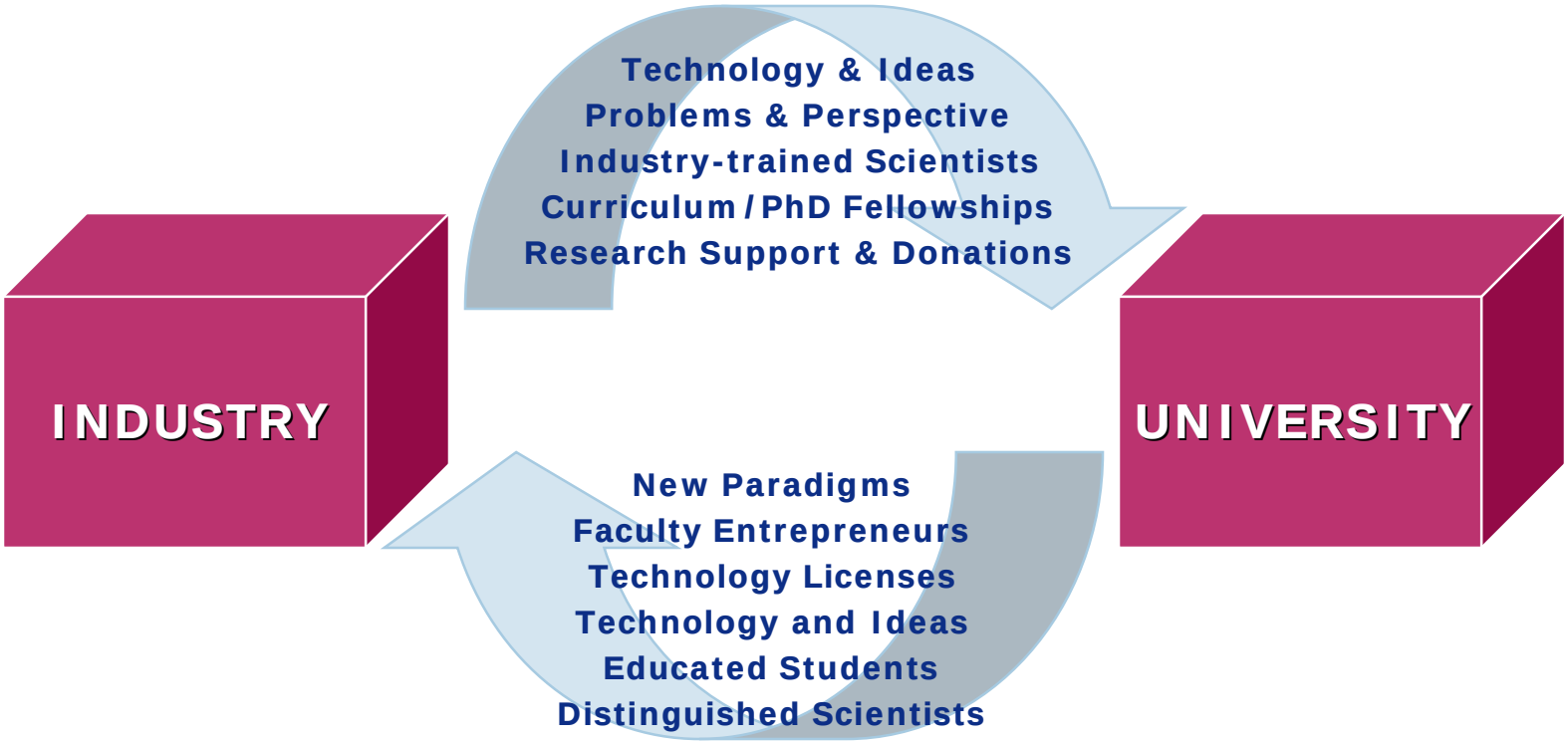
Models for Reinvention

“Maybe that’s the secret of our success. Our academics are not just sitting in ivory towers talking to each other. They’re talking to people in the private sector who are doing research or thinking of ideas”.

- Senator Hutchison

Rising above the Gathering Storm: Two Years later”

Industry and University: A Magical Synergy



Broad industry-university relationship is a critical synergy for the US innovation and research system. Thinking should consider a broad perspective on the relationship.

Industry-University Synergy creates Harvestable Innovation

Mixing of Personnel: The US system blends industry and university experience and talent. At present, this mix is unique, but others are emulating.

- **Academic talent and perspective and leadership strengthens industry**
  - **Scientists, Research Directors, Founders of new organizations**
- **Industry talent and perspective and leadership experience strengthens universities**
  - **Professors, Institute Leaders, Center Directors, Deans, Presidents**
- **Phenomena enriches both small and large universities and companies**

Collaboration: Aided by deep social network, collaboration creates a potent mix of perspectives, science, technology and ideas

Harvestable Innovation: Mixing and collaboration enables collaborative problem formulation, increasing the creation of harvestable innovation which can take root and create disruptive new industries and propel

There is increasing aggressive global competition for engagement, mixing, and synergy.

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Health of US Industry-University Synergy

Under siege

- Focus on licensing increases the friction and complexity of relationships. Boundaries, ownership, administration, negotiation. Antagonistic not symbiotic.
  - University: Fragmentation of research groups, departments, compartmentalization of ideas/research/information/education. Ownership thinking: IP management, IP releases for collaborators.
  - Industry: Engagement complexity and litigation risk growing, disincentives for collaboration
- Increasingly competitive global business environment reducing industry ability to engage – less long term research, fewer staff to collaborate, less funds to invest
- Growing global pressure and competition for university engagement – rising universities, government funds, government pressure

These forces are eroding the synergy; we need a reinvention to restore a healthy foundation.

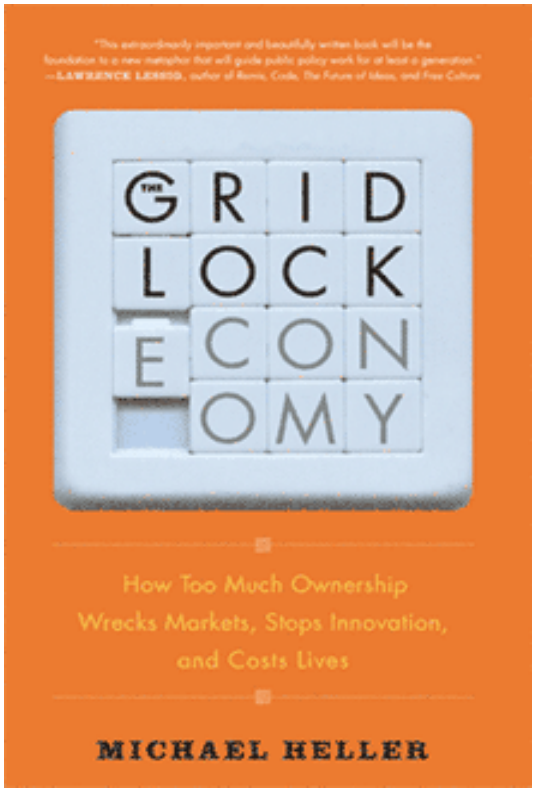
Broad trends in Ownership Rights

Observation

- **Too many property rights leads to the Tragedy of the Anti-Commons (*"Gridlock Economy" by Michael Heller, Professor at Columbia Law School*)**

Examples

- **Radio Spectrum wasted (60% US prime spectrum is fragmented, 90% underused)**
- **Medical cures withheld (potential Alzheimer's drug shelved, SARS and bird flu vaccines slowed)**
- **Today's Mortgage meltdown (fragmented lenders, outdated one-bank regulations)**



We should avoid gridlock and increase innovation by balancing individual ownership rights with sharing and pooling structures.

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Example: Intel Research Open Collaborative Model

Intel has flourishing labs at

- University of Washington, Seattle
- University of California, Berkeley
- Carnegie-Mellon University, Pittsburgh

All collaborative work is covered by mutually signed Open Collaborative Research agreements

- OCRs define a broad area of collaboration (e.g. CS, EE)
- Research Project Documents (RPDs) define specific projects and collaborators
- All parties (and 3rd parties) have commercialization rights

OCR enables open sharing of ideas and flexible collaboration teams

- Personnel mix freely (faculty, students, Intel staff) at lab and on campus. Co-advised students, Interns.
- Many view labs as an extension of the campus - "CMU SoCS held faculty meeting in Intel lab"
- Legal structure drives stark contrast to many other corporate labs

A Historical Model: ATT Bell Labs (1950-1984)

The 1956 antitrust consent decree required AT&T to

(1) openly license all patents controlled by the Bell System to any applicant at 'reasonable royalties', provided that the licensee also grant licenses at reasonable royalties in return.

(2) AT&T was also required to provide technical information with the licenses on payment of reasonable fees; licenses had the right to sublicense the technology to their associates [19].

Bell labs research was largely funded by the 'license contract fee', assessed on the annual revenues of the Bell operating companies. This very stable source of research funding supported a constant stream of basic innovations [22]. Using its own portfolio as leverage, AT&T was able to obtain the reciprocal rights it needed to continue to innovate, unimpeded by IP of others.

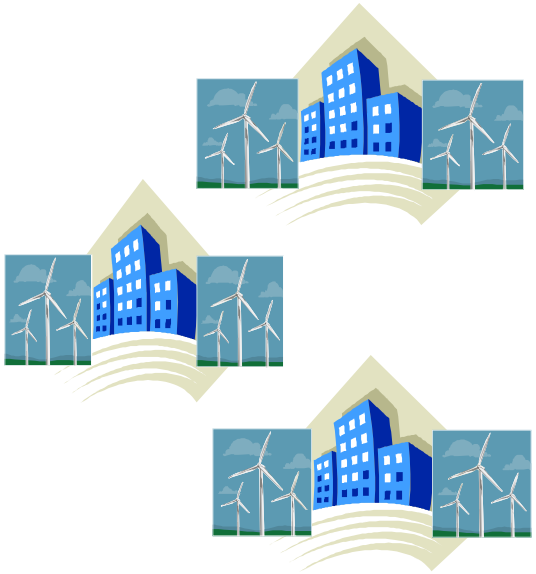
Essays in Technology Management and Policy: Selected Papers, by David J. T

Cross-licensing dating back to the original transistor patents is the foundation of the semiconductor industry x-licensing today.

A Model for Reinvention

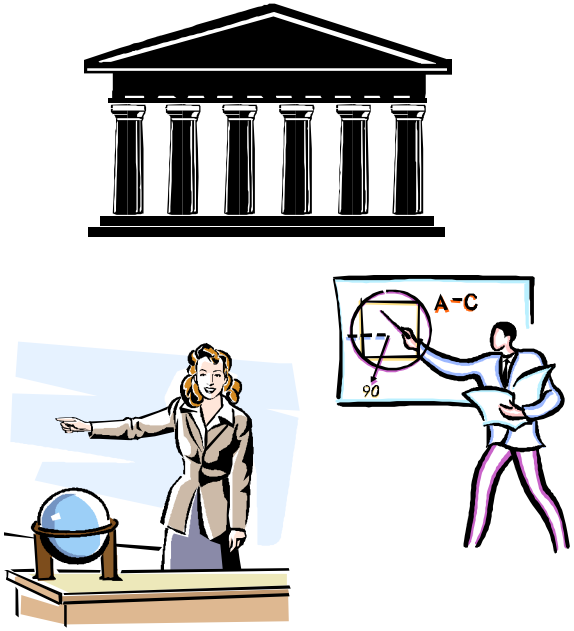
Recreate the role of ATT Bell Labs with

- **US Universities as the research entity**
- **corporations as the source of $$$'s**
- **broad open licensing of university IP**



$$$'s
Collaboration

Innovation,
Broad IP Rights
Collaboration



Companies

Universities & Researchers

Challenges for Reinvention

Respect the nature and character of the university as a multidisciplinary, collaborative, creative institution focused on a mission of research and education

- Barriers and boundaries to collaboration and flow of information should be minimized

- Support and encourage broad engagement of industry as a valued collaborator in many dimensions
  - Reduce the complexity and risk of engagement for industry, and create incentives and streamlining where possible
  - Maintain or increase the incentive and support for industry engagement
- Respect the distinct needs of specific disciplines (or startups) to have different models
  - Set the foundation for the general case, but allow flexibility in specific cases where distinct needs have been demonstrated

Summary

Industry-university synergy has been recognized as a key element of our innovation and economic growth system, and we need to address the breadth of that relationship.

Our current system is under siege and in the eyes of many university and industry leaders functioning less and less effectively for all parties.

Broad reinvention which respect the nature of universities and the role of industry in innovation is needed to reignite industry-university synergy in the US.

We need leadership on such change.

Thank you.